

## ABSTRACT

According to the present invention, there is provided a plating apparatus which can deposit a metal plated film such as a copper layer selectively in fine recesses for interconnects, such as trenches or via holes in a circuit form. The plating apparatus of the present invention includes an electrode head (701) having an anode (704), a plating solution impregnated material (703) for holding a plating solution, and a porous contact member (702) which is brought into contact with a surface of a substrate; a cathode electrode (712) which is brought into contact with the substrate to supply current to the substrate; a pressing mechanism (709) for pressing the porous contact member of the electrode head against the surface of the substrate under a desired pressure; a power source (723) for applying plating voltage between the anode and the cathode electrode; and a control unit (721) for correlating and controlling the state for pressing the porous contact member of the electrode head against the surface of the substrate, and the state of plating voltage applied between the anode and the cathode electrode.